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# U. S. DEPARTMENT OF AGRICULTURE.

DIVISION OF ECONOMIC ORNITHOLOGY AND MAMMALOLOGY.

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## Circular on the Geographical Distribution and Migration of North American Birds for 1887.

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Through the courtesy of the American Ornithologists' Union, the Department of Agriculture has secured the co-operation of this organization, and has undertaken to carry on the work begun by the Union on the Migration and Geographical Distribution of North American Birds.

The Department wishes to ascertain the whereabouts of all our birds during the winter season, and the times of leaving their winter homes; to determine, if possible, the number and extent of the chief avenues of migration in North America, and the average rate of speed at which the different species travel; to find out the dates of their appearance at and disappearance from at least a thousand localities, both in spring and fall, for a period of years; and to map out the *breeding areas* of every species which rears its young in North America north of Mexico.

In order to obtain this information it is necessary to secure the voluntary services of a large corps of observers, each of whom is requested to contribute as full data as possible concerning the questions mentioned in this circular.

The first item in an observer's report should be a brief but careful description of the principal physical features, including latitude, longitude, and altitude, of the locality which is the seat of his observations.

The data collected may be arranged conveniently in three general classes: *a.* Ornithological Phenomena; *b.* Meteorological Phenomena; *c.* Contemporaneous and Correlative Phenomena.

### (*a.*) *Ornithological Phenomena.*

Each observer is requested to prepare, at his earliest convenience, a complete list of the birds known to occur in the vicinity of his station, and to indicate (by the abbreviations inclosed in parentheses) to which of the following five categories each species pertains:

1. *Permanent Residents*, or those that are found regularly throughout the year (R).

2. *Winter Visitants*, or those that occur only during the winter season, passing north in the spring (WV).

3. *Transient Visitants*, or those that occur only during the migrations, in spring and fall (TV).

4. *Summer Residents*, or those that are known to breed, but which depart southward before winter (SR).

5. *Accidental Visitants*, or stragglers from remote districts (AV).

It is desirable also to indicate the relative abundance of the different species, the terms to be employed for this purpose being: *Abundant*, *Common*, *Tolerably Common*, *Rare*.

If you are in a position to observe the lines of flight of birds, have you noticed whether or not such lines are influenced by the topography of the country, and if so, to what extent?

If a mountain intercepts the line of flight, what kinds of birds pass around it, and what kinds pass over it?

What localities in your neighborhood are sought as resting-places by the various kinds of migrating birds? Can you give any reason for this selection?

What kinds of birds generally move in flocks, and what kinds in pairs or singly?

Are you familiar with any kinds of birds in which the males and females, and old and young, fly in separate flocks? In many species the males arrive in advance of the females, hence it is important to note the sex of the first comers, and the date at which the opposite sex is first seen.

Have you observed from year to year any increase or decrease in the numbers of any kind of bird known to you? If so, do you attribute such change to altered conditions in the bird's breeding grounds? If not, can you assign a cause?

Have you observed the increase or decrease of one species to affect the numbers of another species? If so, can you explain the fact?

Has any kind disappeared altogether, and if so, can you assign a cause for this disappearance?

Among the birds which are now common about your station is there any kind that was formerly rare or absent? If so, can you explain the fact?

Among the birds which breed regularly in your vicinity have you ever observed an individual which by some personal peculiarity (such as the presence of white or dark feathers where they do not belong, or by some deformity) could readily be distinguished from others of its kind? If so, has this bird returned to the same place to nest year after year?

In recording arrivals and departures it is highly important to distinguish between the movements of irregular stragglers, of the advance guard or "van," and of the principal mass or "bulk" of the species. For this purpose observers are requested to note:



1. When the species is first seen.
2. When it is next seen.
3. When it becomes common.
4. When the bulk departs.
5. When the last individual is seen.

In addition to the above data, which *all* observers are requested to furnish, the Department particularly desires exact records of every increase and decrease in the numbers of a given species over a given area; for it is only by the knowledge of the daily fluctuations of the same species in the same place that the progress and movements of a "flight," or "bird-wave," can be traced. Such data can be contributed by experienced observers only, and in their procurement much time must be spent in the field. During the progress of the migratory movement the observer should go over the same ground day after day, and, if possible, both early in the morning and late in the afternoon. He should visit woodlands, thickets of dense undergrowth, and open fields; and if possible, both swamp and upland should fall under his daily scrutiny.

The above may be regarded as *essential data*. There are many other noteworthy details that bear more or less directly upon the complicated problems involved in the study of migration. Among such may be mentioned the bodily condition of the bird (whether fat or lean), the molt, and the periods of song. The time of mating, when observed, should always be recorded.

The Department desires positive information concerning the food of all birds, and will furnish on application a special circular devoted to this branch of the inquiry

(b) *Meteorological Phenomena.*

Information is desired upon :

1. The direction and force of the wind.
2. The direction, character, and duration of storms.
3. The general conditions of the atmosphere, including rainfall.
4. The succession of marked warm and cold waves, including a record of all sudden changes of temperature.

(c) *Contemporary and Correlative Phenomena.*

The Department desires that the data under this head be as full and complete as possible, and requests exact information upon :

1. The date at which the first toad is seen.
2. The date at which the first frog is heard.
3. The date at which the first tree-toad or "peeper" is heard.
4. The dates at which certain mammals and reptiles enter upon and emerge from the state of hibernation.

5. The dates at which various insects are first seen.
6. The dates of the flowering of various plants.
7. The dates of the leafing and falling of the leaves of various trees and shrubs.

8. The dates of the breaking up and disappearance of ice in rivers and lakes in spring, and of the freezing over of the same in the fall.

It must not be supposed, because a large amount of information upon a variety of subjects is asked for, that meager or isolated records are not desired. Quite the contrary is true. Comparatively few of the observers are ornithologists, or even bird collectors—the great majority being intelligent farmers, tradesmen, and light-keepers. Those who know only the commonest birds, such as the Robin, Bluebird, Bobolink, Martin, Hummingbird, and Chimney Swift, can furnish important data, and their services are eagerly sought.

In order to secure better results, a portion of the territory under investigation has been divided into districts, each of which has been placed under the immediate direction of a competent superintendent. Observers not living within the limits of these several districts are requested to communicate with the Ornithologist of the Department of Agriculture.

The Districts, with their respective Superintendents, are:

NEW ENGLAND.—Supt., John H. Sage, Portland, Conn.

ATLANTIC DISTRICT.—New York (excepting Long Island), Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Kentucky, and Tennessee.—Supt., Dr. A. K. Fisher, Department of Agriculture, Washington, D. C.

LONG ISLAND, NEW YORK.—Supt., William Dutcher, 51 Liberty Street, New York City.

INDIANA AND SOUTHERN MICHIGAN.—Supt., B. W. Evermann, Terre Haute, Ind.

OHIO.—Supt., Dr. F. W. Langdon, 65 West 7th Street, Cincinnati, Ohio.

LIGHT-HOUSE DIVISION OF NORTH AMERICA.—Supt., Dr. C. Hart Merriam, Department of Agriculture, Washington, D. C.

LIGHT-HOUSE DIVISION OF SPANISH AMERICA.—Supt., L. S. Foster, 35 Pine Street, New York City.

Schedules on which to record the more prominent facts relating to bird migration will be furnished on application.

**DR. C. HART MERRIAM,**

**ORNITHOLOGIST.**

WASHINGTON, D. C., FEBRUARY 23, 1887.